

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference 01640453TA		Date of mailing (day/month/year) 12 AUG 2005	
International application No. PCT/US05/06789		International filing date (day/month/year) 03 March 2005 (03.03.2005)	
International Patent Classification (IPC) or both national classification and IPC IPC(7): G06F 9/54 and US Cl.: 709/310		Priority date (day/month/year) 05 March 2004 (05.03.2004)	
Applicant VIRGINIA TECH INTELLECTUAL PROPERTIES, INC.			

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Meng-Ai An Telephone No. 571-272-2100
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Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>1-16</u>	NO
Inventive step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-16</u>	NO
Industrial applicability (IA)	Claims <u>NONE</u>	YES
	Claims <u>1-16</u>	NO

2. Citations and explanations:

Please See Continuation Sheet

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

V. 2. Citations and Explanations:

Claims 1, 2, 9, 10 lack an inventive step under PCT Article 33(3) as being obvious over Friedrich et al. (U.S. Patent 5958009).

As to claims 1,9 Friedrich et al. teach a method for controlling data transfer in a device using middleware [see fig. 5]; separating a functionality into a control interface [col. 6, lines 47-55] and a data interface [col. 5, lines 28-47]; constructing control interfaces within processor [col. 7, lines 32-47]; extracting data interface outside said processor [col. 7, lines 48-63].

Friedrich et al. do not specifically teach the method for controlling data transfer between embedded resources. However, Friedrich et al. teaches the method for controlling data transfer between client and server. It would have been obvious to one of an ordinary skill in the art at the time the invention was made to implement Friedrich et al. method for controlling data transfer between embedded resources to allow direct connection and minimize processing overhead.

As to claims 2, 10, Friedrich et al. do not specifically teach control interfaces are implemented using device drivers. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have recognize that device driver is control interface between resources. Therefore, Friedrich teaching of control interface are implemented using device drivers between resources.

Claims 3, 5, 11, 13 lack an inventive step under PCT Article 33(3) as being obvious over Friedrich et al. (U.S. Patent 5958009), in view of Dooley et al. (U.S. Patent 6477174).

As to claims 3, 5, 11, 13 as modified Friedrich et al. disclose data interface are each connected to a switch matrix, said switch matrix being external to said general purpose processor and serving to connect resources and said switch matrix is implemented as a shared memory [Dooley et al., col. 2, line 63-col. 3, line 11].

Claims 4, 12 lack an inventive step under PCT Article 33(3) as being obvious over Friedrich et al. (U.S. Patent 5958009), in view of Dooley et al. (U.S. Patent 6477174), further in view of Madsen et al. (U.S. Patent 6253000).

As to claims 4, 12, as modified Friedrich et al. and Dooley et al. disclose wherein said switch matrix is implemented as a connection fabric (Madsen et al., col. 4, lines 30-54).

Claims 6, 14 lack an inventive step under PCT Article 33(3) as being obvious over Friedrich et al. (U.S. Patent 5958009), in view of Dooley et al. (U.S. Patent 6477174), further in view of NPL "About JTRS", <http://jtrs.army.mil/sections/overview/overvie.html>.

As to claims 6, 14, as modified Friedrich et al. and Dooley et al. disclose wherein said device is a software defined radio, said given system is the Joint Tactical Radio System, and said middleware is compliant with Software Communications Architecture (SCA) [NPL "About JTRS", paragraph 1 and 2].

Claims 7, 8, 15, 16 lack an inventive step under PCT Article 33(3) as being obvious over Friedrich et al. (U.S. Patent 5958009), in view of Dooley et al. (U.S. Patent 6477174), further in view of Lawman et al. (U.S. Patent 5673198).

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

As to claims 7, 8, 15, 16, as modified Friedrich et al. and Dooley et al. disclose wherein one of said resources is a Field Programmable Gate Array (FPGA); further comprising creating an Interface Description Language (IDL); generating a description of an interface between a core functionality of FPGA and switch matrix and controller for performing core functionality; integrating said core functionality interface into data interface of FPGA and integrating controller into control interface of FPGA [co. 10, lines 42-48 and col. 3, line 53-col. 4, line 2].

Claims 1-16 meet the criteria set out in PCT Article 33(4) and thus have industrial applicability because the subject matter claimed can be made or used in industry.

NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under Article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the *PCT Applicant's Guide*, a publication of WIPO.

In these Notes, "Article," "Rule" and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Preliminary Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When? Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How? Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.